

Lente

THE
MOUNDS OF FLORIDA.

BY

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SARATOGA SPRINGS,

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PALATKA, FLA.,

DEC. TO MAY.



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THE writer has recently* endeavored to impress on the minds of invalids and tourists coming to Florida, and who propose to spend the winter here, the importance of devising some means of ensuring both physical and mental employment, regarding, as do others, who have studied the subject, idleness and *ennui* as militating seriously against the chance of securing the full benefit of a winter residence here. Many are obliged to locate themselves where there may be but little congenial society, or where the amusements, and the inducements to outdoor exercise and exploration may be very limited. Some of the more enquiring and energetic variety of invalids are disposed to find objects of interest anywhere and everywhere. Nature is never dull when intelligently interrogated; but is always instructive and entertaining; and, to the denizen of the North, always presents novelties even in her most unattractive tropical haunts, both in her general aspect, and in her *fauna* and *flora*. In the experience of the writer, however, very few of those who find their way here are very persevering in seeking out objects of interest or study for themselves; and they soon tire of one locality, even if the climate and surroundings prove themselves

particularly suited to their peculiar form of disease.

Florida abounds in natural objects of interest. The State is unique among her sister States in many respects; *in her geological formation*,—built out, as it were, like a shelf from the shore, through the agency of myriads of little “toilers of the sea;” her foundation secure enough for all practical purposes, but not solid like the main-land; underlaid, so to speak, by arches, and pillars, and caverns, and subterranean lakes and streams, here and there coming to the surface, and sometimes, it must be confessed, rather suddenly;* *in her rivers*,—bursting full

*Bartram, a naturalist, who explored Florida more than a century ago, thus describes, in his usual graphic manner, on the authority of a trader and some Indians who saw it, an occurrence of this kind. “The trader, being in the vicinity, heard a loud, rushing noise almost like thunder, and, at a distance, saw the plain overflowed by a rushing torrent of water; it soon overwhelmed the higher grounds, and he rushed towards the adjacent Indian village for safety. He met the Indians, who had heard the noise, and were coming to see the cause of it. They assembled on a high eminence, and saw that the water was issuing from the earth like a great boiling cauldron. It flowed so for several days, and then retreated, and the surface of the water was then some feet below that of the ground. The excavations and beds of the streams, caused by the rush of waters, and now dry, were seen by Bartram. This is precisely what must have occurred, when the fresh-water springs which discharge themselves off Matanzas Inlet, and Cedar Keys, first formed. The sink, above alluded to, was christened “Alligator Hole,” and is situated on the St. Mark’s River.

*“Florida as a Winter Resort,” in THE SEMI-TROPICAL, for January and February, 1877.

grown from the earth, and sometimes from the sea,* capable, at once, of floating large craft; in her *wonderful mineral springs*; wonderful from their extraordinary size and depth, for the unrivalled purity and transparency of their waters, and the abundance of animal life, seen in all its varied forms and motions, as though an ethereal medium, to the very bottom of their lowest depths; in her *crystal lakes*, scattered in prodigal profusion, giving life and animation to the prospect, a delicious variety of food to the inhabitants, and affording an easy means of communication. Then *her history* is a thrilling romance from beginning to end; her change of government and ownership, more rapid and numerous than ever be-

fore experienced in the world's history; *her soil*, lying as it does, under six degrees of latitude, capable of growing every product of both temperate and tropical climes. Her works of *art* are not numerous. Though containing the oldest settlements in the country, she is yet a *terra incognita*. Beyond the very interesting relics at St. Augustine, with which the country is now so familiar, there is nothing which will challenge the attention of the traveler, or compare with those of other States, except her *mounds*.

It happened that the writer, soon after his arrival here last winter, got possession of a copy of Professor Jeffries Wyman's report to the Peabody Academy of Science on the "Shell-Mounds of Florida,"* just out of the printer's hands. This includes an enumeration and examination of most of the noted "shell-mounds" of the St. John's river. The interest, excited in the mind of the writer of this paper by this memoir, induced him and many of his acquaintances to pursue the enquiry, and to seek out and to examine, for themselves, some of these relics of past ages in this vicinity. The interest increased as the work proceeded; and finally, it became an easy matter to assemble, at any time, a party of from thirty to fifty of both sexes to go mound-digging; and no easy matter was it at all times for the ladies to struggle through the dense undergrowth and swamp to reach some of the shell-heaps. The various theories proposed by savants and travelers as to the origin and use of these structures in various parts of the world, their age, the character of the articles found immured, a comparison with those found in widely separated districts, etc., furnished interesting themes for conversation and discussion of a healthy and more or less instructive character. Assuming that future visitors here may take something of a similar interest in these matters, and to add to their somewhat

*An immense body of fresh water, passing from under the State, bursts out in the form of a spring, at sea, off Matanzas Inlet, producing an ebullition or commotion from a quarter to half a mile across, and a peculiar appearance of the water, which can be seen at a considerable distance. It is also marked, said Major Donaldson of the army, to the writer, by immense numbers of gulls circulating about it. A similar, but not so marked a phenomenon, appears off Cedar Keys, in the Gulf, where fresh water may be dipped out of the sea. Occasionally, what are called "sink holes," form suddenly in various parts of the State, the crust, formed of the rotten limestone or coral, gives way and down goes the super-jacent soil with its growth, to a greater or less depth, not unfrequently out of sight, leaving a pond or lake. In this, can always and immediately be found, fish in considerable numbers, showing free subterranean communication. On the other hand, large bodies of water, as in the case of Lake Tuskawilla, in Marion county, suddenly disappear. This lake, several miles in circumference, and of considerable depth, disappeared in one night, the bottom literally dropping out, leaving fish, turtles and alligators innumerable and uncomfortable. The *suddenness* of this occurrence having been questioned by persons long resident in Florida, the writer was able to corroborate it by the testimony of Col. Sprague of St. Augustine, and Judge William Edwards of Micangopy, both of whom were present at the lake at the time. The lake gradually filled up to its usual level, the hole being gradually stopped by debris and deposit.

"In 1837," says a writer in THE SEMI-TROPICAL, July, 1876, "during a terrible storm at night, the lake, (Lake Jackson, near Tallahassee,) from some cause or other, suddenly very nearly disappeared. The storm or something else, knocked the bottom out, and sent the water to some other world. It soon filled up to nearly the former height. It has no visible outlet, and is supposed to have a subterranean channel to the Gulf of Mexico."

*This lamented scientist died before completing his work here.

limited sources of occupation, the writer has ventured to put together, in a more or less readable form, some notes which he jotted down at the time, and some abstracts of the description of mounds and their contents of other writers in various parts of the country, and of other countries. In fact, it is absolutely necessary to study them in connection with others in various localities, and to compare the thoughts and theories of other observers far abler and far better qualified than the writer, in order to acquire anything like just appreciation of the comparative value of what might, otherwise, appear to those whose minds have never chanced to wander to the "mound-builders" and their history, a very insignificant matter. He feels more emboldened to take upon himself this self-imposed duty from the fact that the numerous authors, who have lately written so instructively and pleasantly on Florida, have barely alluded to this interesting subject, though they have generally admitted it to be well worthy of study.

It is astonishing how one becomes fascinated in digging into and groping among such unsightly objects as masses of old shells, covered sometimes by the decaying vegetable matter and rich humus of centuries, and huge heaps of sand. Even those, whose attention had but recently and accidentally been directed to the subject by hearing the casual conversation of others, soon became ardent searchers, and eager enquirers into the significance of the most trivial objects thrown up by the shovel or scratched out with the fingers. It was a novel sensation to most of us, this endeavor to read history in its own language, to make the dead speak, and their monuments to give an account of themselves. The mound digger must become, as indeed he is very apt to become, an enthusiast, or, as Prof. Wyman justly observes, he will overlook the most instructive letters of his new alphabet. "Sometimes," he says, "shovel and rake must

be thrown aside, and the hands must be used in the search, for the smallest objects are often the most significant. A little bit of stone, or minute tool of bone, or a chip of flint, or a little fragment of clay pottery, may be sufficient to overturn a theory, or clench an argument."

A piece of common pottery, liable to be shattered to pieces at a blow, is more lasting than epitaphs of brass or effigies in bronze. These yield to the varying action of the weather; stone crumbles away, ink fades, paper decays; but the earthen vase, deposited in some quiet and long-forgotten receptacle, survives the changes of time, and even when broken at the moment of discovery, affords instruction in its fragments. Perhaps nothing of a physical character more clearly determines the degree of civilization attained by a nation than the progress in the *ficile* art. Urnal interments, burnt relics, and earth mounds, inasmuch as they "lie not in the fear of worms," endure when personal and even national memories have perished. In some of them rest the surest and earliest physical proofs of the antiquity of man. Amid the depths of forests, where everything pertaining to the history or even the traditions of the people, who once dwelt beneath their shadows, is to us, emphatically 'in the urn;' the curiosity of subsequent ages has, in ancient graves, and neglected *tumuli*, caught a glimpse of many things belonging to a forgotten past, learned lessons of the funeral pyre, the last valediction, the funeral customs, the religious rites, and the domestic economy of nameless nations, whose existence could, otherwise have been scarcely more than conjectured.*

Earth-mounds exist in all parts of the world, and are so ancient "that they were old and mysterious in the days of Homer."

The mounds of Florida are of two kinds, the "shell-mounds" and the "sand mounds." There are *marine* shell-mounds and *fresh water* shell mounds. The former extend, in immense heaps, sometimes ten to thirty feet in thickness,

*"Antiquities of the Southern Indians," by C. C. Jones.

all around the coast, as Turtle Mound at New Smyrna, and at Charlotte Harbor and Cedar Keys. Let us first direct our attention to the fresh water shell-heaps or mounds, which almost exclusively occupied the labor of Prof. Wyman. "These heaps," says Foster*, "which have been explored by Prof. Wyman, are on a scale of magnitude, which almost surpasses belief." They commence a little north of Palatka, and extend above Enterprise. They are composed of only three varieties of shells, two univalve and one bivalve; the largest some two inches or so in diameter. The former are in a good state of preservation, while the latter, a mussel-like shell, are sometimes reduced to a powdery substance, from age, a few of them nearly entire, but very fragile. These heaps hardly deserve the title of mounds, and ought not to be confounded with the remarkable structures of the mound-builders. The heaps only attain a height of from three to ten feet, but are often several hundred in length and breadth; always situated along the river banks or shore of a lake; sometimes encroached upon and partially destroyed by changes in the river channels, sometimes at a considerable distance from its shore, in consequence of alluvial deposits, large forest trees growing upon them, and upon those deposits. It has always been a mooted question as to how those heaps were formed. Many even now contend that they were thrown up by the action of the waves; but exactly how the moderate current and placid surface of the narrow river, for it is in the narrowest portions that they are found, could have done this, they do not explain; nor how they became mounted, as they often are, on the bluffs, as at Murphy's Island, and other points. This may, however, be attributed to an upheaval subsequent to their formation, which, the wavy lines, exhibited by the different strata of some of the heaps, where they have been cut

away perpendicularly, might appear to indicate. But why they should be accumulated to such an enormous extent only here and there, at long intervals, and not, as it would seem they ought to have been, if this theory be correct, all along the shores, with some degree of uniformity, does not appear. It has been suggested that birds have fed upon them and deposited the *exuviae* in these localities. But this theory is manifestly untenable. The most natural supposition upon a mere inspection of the heaps and their surroundings, is, that the inhabitants were poorly supplied with the means of obtaining other food more difficult to secure, and resorted to the shell-fish, which must have existed in those days in enormous quantities. These fish are still found here but in no abundance. It is said that the "crackers" still occasionally eat them. They had their habitations at convenient points along the river and evidently lived in groups of families close together. At that epoch, water was more abundant than at present and camping grounds not so numerous. They accordingly chose the highest and driest spots; on these they consumed enormous quantities of the snail-like fish and mussels, and would soon accumulate a large heap of the shells. As they gathered, year by year, the surface was raised, inch by inch, to the height of many feet; higher than they now appear, as decomposition of the shells has taken place, to a considerable extent, and, in so much, has reduced the thickness of the heap.*

*Almost all the natural or wild orange groves are situated on the shell-heaps, or "shell-fields," (Wyman). There has always been a doubt as to how these groves originated, or whence came the seed; whether the trees are indigenous or not. The above fact seems to indicate that the seed were scattered on these heaps when they were probably used by the Spanish and French as camping grounds, as they must always have afforded the most eligible spots. It is improbable that they existed prior to the landing of the Spaniards, as they would certainly have been noticed in the minute descriptions of the animal and vegetable productions, written by both the Spanish and French authors. Mr. Fairbanks (History of Florida) thinks that they are Seville oranges run wild. If so, it is singular that they

*"Pre-historic Races of the United States of America," by J. W. Foster, LL. D.

Now, let us see what the *internal* examination of the heap will reveal. Dr. Wyman spent many laborious days in a most thorough exploration of numerous samples of the shell heaps, searching most carefully for the minutest implements, which might give a clue to the habits of the people who unconsciously reared these lasting monuments of their history. Fragments of pottery were always found, but never in abundance, and seldom in large specimens, bones of various animals, quadrupeds, reptiles, and birds, pieces of flint or chert*, implements of bone, especially some small pointed *spiculae*, which he conjectured to have been used for picking the fish from their shells. Lastly, he exhumed the remains of fire-places, with charcoal and the charred remains of wood; and, on going deeper, still others, indicating that, as the heap of shells became higher they allowed the fire-places to become covered up, and made others. It would not, of course, be a difficult matter to raise such simple habitations as served them, in order to conform to the altered level. Occasionally he found human bones, mostly in fragments, but these were rare. This fact will be again noticed. Here, then, we have the internal evidence which would seem to corroborate fully the theory of the formation of these heaps. The writer's own explorations of several of these mounds led always to the discovery of similar articles but always very sparsely distributed, except the bones of animals. The implements of this primitive race were evidently of the simplest character and not abundant, so that they could ill afford to allow them to be lost. The Conch shell, *Busycon Perversa*, although found rather frequently in the sand mounds, was seldom found in the heaps, and it is not al-

luded to by Prof. Wyman. This will receive further comment.

There are some specimens of fragments of human bones found in these heaps, which require special notice. Dr. Wyman found, in several locations, fragments of the *long* bones, (human,) broken into convenient lengths for getting into their cooking utensils, and then *crushed*, but the parts held together evidently through the medium of the periosteum. Had they been broken, through brittleness induced by age, into so many small fragments, these would have been separated and scattered; neither could any pressure, as Dr. Wyman justly remarks, to which they could have been subjected accidentally in the mound, have produced this peculiar condition. Some of the fragments, found in the small heap, just a mile or so north of this village, and presented to the writer by Dr. Moragne, exhibit precisely the same appearance, and no scientific person, to whom he has shown them, doubted the fact that the fracture was intentional. We are forced then to the inference, if this be so, that it must have been done with a view to extract the marrow by boiling, or by suction. The habit of cracking marrow bones of beef, in this manner, and sucking out or picking out the marrow is indulged in to this day, and considered a great luxury, especially by Englishmen. These bones are very old, have lost all their earthy matter, and are cemented more or less by water charged with lime in percolating the shells. In one instance only were such fragments found in a "burial-mound," and then very near the surface. They may, therefore, have been thrown there by accident when the mound was built. If so it would indicate that the cannibals preceded the mound-builders. In no instance, within the knowledge of the writer, have the mound builders proper been connected, by any discoveries in the mounds, with cannibalism. Dr. Wyman is in doubt as to the comparative ages of the two species of

should have so completely changed their character, as the trees from the orange seed are apt to produce sweet fruit.

* This is not found naturally in this part of the State, but brought from a considerable distance.

mounds. He discusses the subject of cannibalism in his memoir very extensively and interestingly, and quotes numerous descriptions by various writers of the horrible tortures inflicted by the cannibals of this and other countries on their enemies previous to roasting and devouring them. The custom seems to have been in vogue among the Indians inhabiting this country when visited by Europeans, as among the Algonquins and Iroquois. These fresh water shell heaps are found like all other kinds of mounds in various parts of the country, as along the Mississippi and its tributaries, etc. "Their artificial origin was first determined," says Foster (*op. cit.*) "by those eminent naturalists, Lesueur and Say, as far back as 1826, mention of which is made in the magnificent work, 'Travels in the United States by the Prince Maximilian.'"

Those who have contended for the theory of the *natural* formation of the fresh water shell heaps have pointed to the immense accumulations of *marine* shells, oysters, etc., all along the Gulf coast and the Atlantic, as proof, taking it for granted that the latter, from their wide distribution and their magnitude, must have resulted from the action of the waves. It is not more extraordinary that there should be salt water shell heaps than fresh water; as anything edible and so easy of attainment as oysters would most certainly be seized upon by the inhabitants, whose means of sustenance were so restricted. Their size is greater than that of the fresh water heaps, both, because they are less influenced by age than the latter, and because the shell is much larger. But the examination of these heaps ought to set the question at rest. In the first place, no two valves in close proximity will fit or match, as they should do were the oysters thrown up by the waves; they have all been opened. Nor does it appear that any such process has lately or ever been observed going on along our oyster-bound coast, as multitudes of oysters dying, becoming separ-

ated from their reefs or beds, and cast up in huge heaps along the shores, with their valves invariably and widely separated. But like the other shell heaps, they speak for themselves. "On this Bayou," says Foster, (*op. cit.*), alluding to Bayou Barrataria, the rendezvous of the famous pirate Lafitte, "as elsewhere off the sea and lake shores, all the accumulations are artificial." He judges by the remains found in them. "The pre-historic inhabitants doubtless lived on these shell fish, either in great numbers or through many centuries of time." The same class of accumulations, according to Nott and Gliddon, occurs in the Alabama River fifty miles inland, and the evidence is irresistible that the aborigines collected these molluscs for food, when Mobile Bay occupied that region. They say these shells had all been opened, and they found pottery, and the same evidences of cooking, and similar collections of bones of animals to those found by Wyman and the writer of this paper. "Prof. Vanuxem," says Foster, "was the first to call attention to the artificial origin of some of the mounds," among other reasons, because "arrow heads, and fragments of pottery were disclosed, and besides, the deposits reposed on a yellowish loam, the surface soil of the region, which was penetrated with the roots of red cedar." (Proceedings of the American Association of Geologists.) Still stronger evidence of the artificial origin of the marine shell heaps is to be found in the description of the heaps of the Pacific coast near San Francisco. These mounds have also been used for burial mounds by the later Indjans. Paul Schumaker, in an article in the January (1877) number of the *Popular Science Monthly*, speaking of those heaps, says:

Investigation revealed the artificial formation to consist of a layer of shells, most of which are still found among the living species on the island, bones of fish, sea-fowl, seal, and sea-lions, and whales, and dogs and foxes,

and a great mass of cobble stones of all sizes, especially of the size of the fist, and used for fire-places, and chippings of different varieties of chert, chalcedony, jasper, quartz, etc.—rocks suitable for the manufacture of knives, arrow-heads, spear-points and other cutting tools, which do not appear *in situ* on the island, and had to be imported.

It will strike any reflecting person that the small shells of the fresh water heaps must have accumulated, to form such huge masses, either through the co-operation of an immense number of persons, or during an immense number of years. It could not have been by a great number of people living upon such a contracted space, and must therefore have required a great length of time. Let the mounds and their surroundings again speak and tell us their age. The entire absence of any well-formed stone implements, which were used by later Indians, would indicate a rather remote age, as would the condition of some of the shells already described, and also the thick layer of fine humus, which forms very slowly, covering them when lying in the dense forest. One of this description was visited and examined by the writer in company with his friend, Prof. C. R. Agnew, of New York, last winter. It is situated in a swamp on the east side of Murphy's Island, about ten miles south of this place. Though a rather extensive heap, about nine hundred feet in length by about thirty-five in breadth, with irregular elevations, it was so covered by forest growth and detritus, that our guide himself had difficulty in finding it. It is at a distance of nearly three quarters of a mile from the shore of the river, though doubtless at one time forming a portion of the shore itself, judging from the formation of the surface between it and the river, which is, of course, flat and swampy, and from having been a shallow bay, has been filled up by alluvial deposits. On this, is growing almost to the water's edge, very large forest trees of slow growth, as live and water oaks, etc. It

must have required many hundreds of years to form this land, and to give rise to such a growth. The thickness of the layer of humus on the heap, and the size of the trees are parallel evidences of age. Similar recessions of the river have been noticed at other points, as at Huntoon Island. In estimating the age of these mounds we are not confined to mere conjecture. Trees increase by concentric rings, each ring measuring a year of age, so that, when we have a tree growing in the mound, or the remains of a tree standing, by counting the ring—or if this is not possible, by measuring the diameter, and knowing the number of rings to the inch, within certain limits, for each variety of tree—we may deduce the age with some approach to accuracy. The writer measured the shell of the stump of a live oak standing near the mound just noticed, and found the diameter twelve feet at the junction with the earth, and eight feet where it became cylindrical, three feet above. This would give over five hundred years for its age when it died; but as a considerable portion of its outer shell may have been lost by decay, its age was probably somewhat greater, perhaps six hundred years. On a shell mound on the west side of this island, alluded to but not examined by Prof. Wyman, is the shell of a stump of a live oak, which, at the point where it begins to expand at its junction with the ground, measures eight feet, and its summit, two and a half feet higher, five feet; a considerable portion of the circumference has, however, been lost by decay; allowing for this, the age of the tree was something over four hundred years.* The

*The age of a tree cannot be deduced from its diameter unless we know the rate of its annual growth (that is the thickness of the rings or the number to the inch) though the same variety of trees may have rings of various thickness according to the soil. According to Dr. J. A. Lapham of Wisconsin, different trees in that state vary as to age, from 99 years to the foot, to 130 years. The harder woods have usually more rings to the inch. "The largest and oldest trees in the State," says Lapham, "is one near Manitowoc, a white cedar, 12 feet in circumference, consequently

oldest tree found by Prof. Wyman growing upon a mound, live oak, was six hundred and sixty years. These oaks increase at the rate of twelve rings to the inch. We may form a reasonable approximate, as to the age of this shell-heap. We may form a very rough estimate of the lapse of time between the abandonment of the mound and the commencement of the growth of the tree. It must have required a great many years for a vegetable growth to appear on the mound and to decay so as to form a soil sufficient to support such a growth, probably a century at least. If then, we add this to the age of the tree, and make an estimate of the time required for a moderate number of families to consume shell-fish of such small size sufficient to form a mound several feet in thickness, we may arrive at a reasonably fair conclusion as to the age of the heap.

Let us now take up the study of a very different class of mounds, or the mounds proper. They are always built of a very fine sand, hence their common name, "sand-mounds." Prof. Wyman, who devoted comparatively little attention to

860 years old." This is not very old when we compare it with the olive trees in the Garden of Gethsemane, several of which, now standing, are computed to be from 1,000 to 1,500 years old. They are comparatively small. The writer found it almost impossible to count the rings of an olive only four inches in diameter, with the aid of a lens, although the section was polished. "The latter tree," says Lossing, ("The Hudson from the Wilderness to the Sea,") alluding to some dwarfed balsams on Mount Tahawus, not more than five feet in height, "are most of them centenarians. Their stems, not larger than a strong man's wrist, exhibited, when cut, over one hundred concentric rings." E. D. Cope (Wheeler's Report on the Geographical Surveys and Explorations West of 100th Meridian, 1875) says, "My assistant, an educated and exact man counted the rings in a cut made into the side of a Pinon (*Pinus Cembroides*). In a quarter of an inch of solid wood he found 16 concentric layers, or 64 to the inch. The Pinon is a small species, hence the closeness of the rings in a small tree." DeCandolle mentions having seen trees in South America from 1,500 to 6,000 years old. Under the city of New Orleans immense trunks of trees were discovered while making excavations. Some of the cypress trunks were ten feet in diameter. Their age must have rivalled that of the South American giants; but they are dwarfs along-side of the cedars of California.

these mounds, intending to make another visit here for their examination, calls them "burial" mounds. In one sense they are, but it will require further investigation to prove that they were really constructed for this purpose. So far, the weight of evidence in Florida is against this supposition; for, as we recede from the surface in digging, and get nearer the centre, we cease to find any articles whatever, nothing but the cleanest and purest sand. Dr. Wyman says he could not, at the time, command the necessary labor to enable him to penetrate fully to the bottom of the mounds, and thus far, the writer has met with the same difficulty. A very determined effort was made by a large party, including the writer, last winter, to open up a mound on Dunn's Creek, near Palatka, and we reached the bottom very nearly, digging a trench directly through the mound; but the day was hot and our time too short, and even with the assistance of our negroes, we failed to demonstrate fully the *absence* of objects of interest at the bottom. My friend, Jno. P. Haines, a zealous member of the Museum of Natural History of New York, went up the river above Enterprise to examine a mound, but he, too, from lack of time and labor, failed to get to the bottom of the mound, though he found many interesting relics. General Peden, of Jacksonville, who has been long in Florida, and has devoted much time to this investigation, informs the writer that, in one instance, if not in more, a single skeleton has been found at the *bottom* of a mound in the sitting posture, one which is commonly adopted by pre-historic races. He cannot recall the exact localities of these mounds, as it was many years ago. It is probable that some of them were constructed for the burial of distinguished persons, and others for some other objects, as in other parts of the United States; so that even the thorough examination of one or more might not fully settle the question. It is to be hoped that tourists, who may have the inter-

est and the leisure, and the means, may investigate this subject fully in other parts of the State little frequented at present, where far more interesting relics are represented to exist than we find along this river.

It has been remarked that they, in one sense, are burial mounds. They are invariably truncated cones, having a broad, circular base, a moderate height, and broad area on top. Nothing is found on digging into the sloping sides, but, at the depth of two or more feet on the upper surface, we come to various relics. For instance, in the mound on Murphy's Island, alluded to by Wyman, measuring about one hundred and fifty feet in circumference, about twelve in height, and about thirty feet in diameter on top, the writer found numerous portions of human skeletons, many skulls, more or less imperfect. The bones were not placed in any order. A small portion of the surface had already been disturbed, but, in portions which had not been, as under the roots of decayed trees, the same disorder prevailed, and this has invariably been the case, where bones have been found in these *surface*, or as they have been technically termed, "intrusive" burials. This fact will receive further comment when we come to consider the mounds of other parts of the country. A remark made by Jno. Bartram, (Vol. marked "Florida," in Astor Library, by Roberts, Stark and others, page 26,) may perhaps give the clue to the explanation of this. "Whether the Florida Indians," he says, "buried the bones after the flesh was rotted off them, as the present Southern Indians do, I can't say." In such a case the bones would naturally not be arranged in anatomical order. The object of this may have been to prevent their exhumation by wild animals. No bones of animals are found in these mounds, a striking contrast to the shell mounds in this respect, a fact worthy of remembrance. The bones were mostly in rather an advanced state of decay. The low-

er jaw was generally perfect, and its teeth intact. It is worthy of note that the condition of the latter always indicated great age, their crowns almost entirely worn off. The same fact was noticed by Mr. A. C. Beals, the U. S. Hospital Steward at St. Augustine, who obtained numerous relics from a large mound near that city. This would indicate perhaps that only the aged (most distinguished) members of the tribe were accorded the honor of mound burial. It is important to record that one skull was decidedly distorted,* flattened on one side; the significance of this fact will presently be appreciated.

Along with the bones, were found a considerable number, but no variety except in point of size, of stone implements; a sort of thick, short chisel, which has been called, by various archæologists, "bark peelers," "mullers," "axes," etc. They are made of a moderately soft stone, their form is perfect, the lines all curved and apparently as true as if regulated by mathematical calculation. Their outline and exact appearance may be seen in any of the recent publications on American Antiquities. They are different from the *axes* so abundantly found in other States, as they have no groove. Dr. Wyman states that an axe has never been found in the State. But Mr. Beals writes, of the relics in his possession, "one of the axes was nicely polished, and *had a groove around for a handle.*" These chisels or scrapers are supposed to have been used for scraping and dressing the skins of animals. A few *stone beads* were found, a tolerably perfect arrow-head, and one curious specimen, which gave rise to considerable speculation as to its probable use, especially, when the Rev. Mr. Roache, of this place, not long after, in another mound, found a similar one. They are concavo-convex plates of stone,

*"The flattened and distorted skull," says Jones, who figures specimens in his work (*op. cit.*) "belongs to the mound-builders, to whose industry the erection of these tumuli is to be referred."

about five inches long, two and a half broad, and half inch thick; and are apparently fragments of an immense stone pot. The material appears to be steatite, spangled throughout with minute particles of mica. It yields readily to the finger-nail, and the markings upon it are curious, showing, in the first place, that it has been scraped, apparently with the nail, in one spot so often as to perforate it. That this hole was not made intentionally in order to suspend it, is evident from the fact that one corner has been grooved around with some instrument, so as to allow of its being tied at this point, either to be worn on the person as an amulet, or to suspend it for safe keeping. It is possible, as Mr. Roache suggested, that they may have scraped off the powder as a medicine. The shining, silvery particles may have given an idea of superior virtue as a medicine, or the pot may have been known to have been formerly used for boiling down medicinal herbs, and supposed to have absorbed their virtue.* Numbers of similar pots, perfectly preserved, were brought by Lieut. Wheeler, U. S. A., from the mounds and graves of California, and are now in Washington. Some are found in the mounds of Georgia and Alabama. "Prof. Joseph Jones," says C. C. Jones, Jr., "has a vessel of this sort weighing over two hundred pounds, and one was exhumed

*Coreal (voyages de F. Coreal aux Indes Occidentales 1660-97) quoted by Jones, gives a curious account of the treatment of patients by the *Jaouuinans* of the modern Indians of Florida. He does not speak of their using the powder from the medical pots, but of an emetic powder, prepared from calcined shells. He says—"One must be a Floridian or the devil to resort to the violence of this emetic." Mr. Jones (*op. cit.*) goes on to say that "the office of physician among these primitive peoples, accompanied as it was with authority, notoriety and emoluments, was not exempt from danger. Failure to effect a cure, in some instances, involved, as a direct consequence, the death of the practitioner." He also remarks (very *apropos*) that "the suggestion of such a penalty at this time for professional ignorance or malpractice would most essentially diminish the applications for the degree of M. D., effectually thin the ranks of the medical fraternity, and entirely extirpate the class of ignorant quacks infesting the community throughout all its borders."

in Alabama large enough to allow an adult to sit and bathe in it." Imagine the patient labor it must have required to fashion so perfectly these huge vessels, with no metallic tools, only chisels of hard stones, flint, obsidian, etc. Numbers of fragments of the ordinary clay pottery were found. These are found not only in the mounds, but scattered over the surface of the ground in their vicinity, and often turned up by the plough. They vary in thickness from a quarter to half an inch, and in the character of the markings on their surface, similarly to what we find figured in the work of Jones and others. These markings indicating sometimes the manner in which they were moulded, (in basket work,) sometimes are merely ornamental. The very fragile nature of this pottery, made thin and of only partially baked clay, accounts for the great abundance of the fragments wherever the inhabitants assembled in any numbers. There is a heap in the city of Rome, three hundred feet high, made of fragments of pottery entirely. Perfect specimens, and specimens rudely representing figures of men and animals and idols are found in other States; but, so far, hardly any perfect specimens have been found here, only two by Prof. Wyman, one of which was a small toy pot. He remarks, however, that the pottery of St. John's river is very rude in comparison with that found in other parts of Florida, especially at Cedar Keys. Mr. Beals found a very good specimen in the mound near Augustine, which he figures in a letter recently received here by a friend, and describes as "a cup about five inches high and very neatly ornamented. It had evidently, been once taller, and having been broken, had been cut off and holes made to convert it into a bale." It is likely that further explorations will develop far more important relics than any yet discovered.* The material of

*Since the above was written Mr. Fry, of this place, had a perfect pot sent him from a mound about twelve miles from here, which he is engaged in excavating.

which the pots were made was a remarkably tenacious black or bluish clay, found now in some parts of the State. They are burned to a light, yellow color, within and without, but only partially. Besides these fragments, we turned up several large conch shells, *Busycon Perversa*. These appear to have been held in considerable estimation in Florida and in other parts of the country, probably for utensils, and for the manufacture of various ornaments, as we shall see further on; and, on this account, are found buried with their most valuable possessions, the stone scrapers, as a mark of respect to the dead. It is not at all probable that those burials were made by the mound-builders, hence, as has been remarked, the term "burial-mound" is not strictly appropriate.

Professor Wyman supposes, and is very probably correct, that the Northern Indians, those from Georgia and the Carolinas, came in, conquered the Florida Indians, and used those mounds for burial purposes. We shall see, when we come to consider the mounds found in other States, that this was not an uncommon practice; that the condition of bones and other articles found at the *bottom* of the mounds, point unmistakably to an age several hundred years at least, probably over two thousand, greater than those found on the *surface*. Thus, when our records are lost, or imperfect in one section of the country, we can supply the links of history by reference to those of another. We have some evidence of the mode of burial of some of the later Florida Indians, who were overcome by Northern tribes. John Bartram, who explored portions of the State, especially the St. John's, more than a century ago, describes a burying-ground of the more modern Indians, situated some distance

above Lake George, on the river, containing the sepulchres of the Yemassee, who were here slain by the Creeks in the last decisive battle. These graves occupied the whole grove, consisting of two or three acres. There were near thirty of these cemeteries, mostly of equal size and form, being oblong, twenty-five feet in length, ten or twelve broad, and three or four high. Here we see the tendency even among the later Indians to build their burial places in the form of mounds*. Possibly the idea originated in a necessity for protecting the bodies from incursions of wild animals, or other intruders. Our present wild Indians of the plains, not being able to command the labor sufficient to raise mounds, take the opposite course, and perch the dead bodies on poles in the air. At one time, the demands of medical science for material for dissection, in the absence of any law legalizing it, became so very imperative that the necessity for protective mounds was sorely felt by the community. It is rather singular that the bones in these mounds, even where the latter have evidently not been disturbed, are in the scattered condition already described as characterizing the ancient mounds. It would seem that skeletons, and not merely fragmentary portions, ought to be found, unless there was some peculiarity in their burial rites. This supposition seems probable, from a remark by John Bartram, and already quoted. This same condition of the bones is noticed in the mounds of the Mississippi Valley, where they have apparently never been disturbed.

Articles found in some of the mounds of Florida bring us down to much later than the stone age; so that they may be considered as representing several epochs. Near the surface of a mound near Lake Winder (a widening merely of the St.

And Mr. H. L. Cable, of Lake Weir, informs me that his men, in excavating a mound on his place dug up a pot which was found lying over a skull, and which was perfect, with the exception of a small hole in its side, from which a fragment had been knocked out.

* Homer and Herodotus describe the building of monumental mounds over the graves of heroes, and the custom has prevailed in all ages up to a comparatively recent epoch in history.

John's) Dr. Moragne of Palatka, who penetrated this lake and Lake Washington, still further South, with the only steamboat which had ever entered there, found, among other curiosities, beads of glass and silver, silver trinkets, as perforated disks, also perforated pieces of carnelian. Similar articles have been found on some of the Kissimmee mounds, as in the so-called Dougherty mound near Lake Okeechobee, also steel axes. Some of the most remarkable mounds of the State are found at this point, and on Pine Island in Charlotte Harbor, an interesting region to visit, and abounding in fish and game. Among the "Kissimmee system of mounds" on Parton's Island, are mounds and earth-works which resemble very closely those of the mound-builders of the Mississippi Valley. "The purpose for which the mound was built," says Mr. Conklin, alluding to one of them, "is entirely a matter of conjecture; but the outwork, as it now exists, was evidently a fortification, of which the mound served as the citadel, while the works on the North are the approaches of a besieging enemy; the banks being constructed by digging the earth and carrying it forward as is done in modern engineering, while the level way in the rear served as a road, on which was brought up the heavy material used in the siege." Other extensive fortifications near this, the walls of one being twenty feet thick, are described. On these structures are trees hundreds of years old. Similar, but more extensive and elaborate fortifications are found on the hills and mountains of Georgia.

Besides these mounds and *quasi* fortifications there are extensive *canals* of very ancient date apparently, judging by the trees growing on their banks, which have also given rise to considerable speculation and difference of opinion. Some preferring to believe, as in the case of the shell-mounds, that they are due to natural causes, heavy freshets, for instance, and the water cutting its way

through; others contending that, when completed, they were intended for draining Lake Okechobee, and the surrounding region, as the different sections are said to lie in line for that point. Not having seen these works, the writer has no opinion to offer. Dr. C. J. Kenworthy, who has carefully examined them, believes them to be of artificial origin. It would seem to have been a very superfluous labor to undertake to drain a large extent of country when such abundance of fertile lands were lying vacant all around. Nevertheless, the different portions of the work appear to have been laid out with such precision, that the question continues to be mooted. "Mr. Fontaine," says Baldwin, "claims that this ancient race, if they did not cut numerous channels, at least constructed levees to control and utilize the bayous of the Mississippi for agriculture and commerce."

The most important mound in point of size and beauty on the St. John's is that at Mount Royal, from which it takes its name. William Bartram,* a distinguished naturalist, thus alludes to it and the country adjacent. From this place, (Mount Royal and Fort Gates, opposite,) we enjoy a most enchanting prospect of the Great Lake George, through a grand avenue, if I may so term this narrow reach of the river, which widens gradually, for about two miles, towards its entrance into the lake, so as to elude the exact rules of perspective and appear of unequal width. At about fifty yards distance from the landing, stands a magnificent Indian mound. Fifteen years before, when he visited the spot with his father, John Bartram, "there was," he says, "a noble Indian highway, which led from the mount, three quarters of a mile, first through a point or wing of the orange grove, and continuing thence through an awful forest of live oaks. It was terminated by palms, and laurels, and magnolias on the verge

*"Travels in the Carolinas and Florida," Dublin, 1793. (Mercantile Library, N. Y.)

of an oblong lake. The road was fifty yards wide, the bank being thrown up on each side some two feet high." The effect produced by this combination of a beautiful level savanna beyond the lake, is described by him as "most striking and magnificent." J. Bartram says, in his journal, (Astor Library,) "live oaks are growing upon it three feet in diameter," and he describes an extensive wild orange grove on the mound and around it. The vicissitudes of Florida history are well illustrated by what took place in this locality in a comparatively few years. Thus, when the elder Bartram described it in 1772, there were the grand old oaks, and the flourishing orange groves. Fifteen years later, when his son visited it, these had been destroyed, and had given place to extensive fields of Indigo, at one time a valuable product of Florida. Then, the cultivators had departed, the fields were deserted, the fences rapidly disappearing, and desolation reigned supreme. In 1876, more than a century after, when the writer visited it, the mound and the open field around were planted with beans and seedlings of the sweet orange, and the forest east of it had grown up again, and the remains of the great roadway are still to be seen. In a few years something of the original aspect of the place will again appear, the orange groves and the "awful forest."

The mounds exist in all parts of our country except the Northern, Eastern and some of the Middle States. They extend especially along the Mississippi and some of its tributaries, both east and west, down through Texas, across the Rio Grande into Mexico. Baldwin says they are more numerous around the Gulf and the lower Mississippi, although there are one hundred "enclosures" and five hundred mounds in one County of Ohio, and fifteen hundred "enclosures" and ten thousand mounds in the State. This gives some idea of the number in the whole country, and of the density of a population of which not even a tradition has

been handed down. They exist in various forms, as *mounds* proper, those generally presenting truncated cones, often with extensive bases, but rising only six to twelve feet in height, sometimes thirty or forty, with a level section, or area on top, but now and then rising in a conical or pyramidal form to a greater elevation; as, for example, seventy feet in height and one thousand feet in circumference at Grave Creek, West Virginia, sixty-eight feet high and eight hundred and fifty-two feet in circumference, at Miamisburg, Ohio, (figured in Baldwin's *Ancient America*), ninety feet high, as the great pyramid at Cahokia, Ill. Some of the works consist of "embankments," "graded ways," as near Piketon, Ohio, "enclosures" of great extent, "ditches" or "fosses," "walls," fortified hills," as in Butler county, Ohio, and long lines of embankment, enclosing "groups" of mounds. It is remarkable that the outlines of these structures are always mathematically perfect, whether circular, oval, squares, parallelograms, or octagons. This indicates, says Baldwin, as Squier and Davis have remarked, that the "builders possessed a standard of measurement, and had a means of determining angles." When we consider that the circular works, as at Liberty, Ohio, were from twenty-four hundred to fifty-one hundred feet, or nearly a mile, in circumference, enclosing about forty acres, the wonder is still greater how they managed to lay out such perfect figures.*

Now, as to the contents of these mounds. A number of them have been explored to their very bottom, and we may infer what we might be likely to find under the larger mounds of this State. The search is still going on. Within the past two

*On many of the Pacific Islands are some huge structures of remote antiquity, built of accurately hewn stones of great size, with caverns, terraces, stair-cases, etc. The same mystery hangs over the origin of these as our own. It is supposed that they are due to offshoots of Malayan civilization, during the existence of what was known to have been a great Malayan Empire.

weeks, the papers have contained accounts of explorations in Wisconsin. Prof. Ganung, of Boston, from a recent examination of mounds in Ottawa county, Michigan, concludes that the race who built them dates back at least two thousand years. There are at least three sets of burials in these mounds, of very different dates, as marked by the state of decay in which the bones are found, and the kind, and material of the relics buried with them; in some instances, are found the skeletons of the mound-builders, with the valuables which they possessed. These bones are always in the last stage of decomposition and generally crumble more or less, especially the skulls, on exposure to the air, and on handling. Out of all that have been found in various parts of the country, "not more than one or two skeletons have been recovered in a state suitable for examination. Messrs. Squier and Davis, in their great work published by the Smithsonian Institution, state that only one single skull known to have belonged to the mound-builders, has been preserved in an uninjured condition.

The pottery, which has been exhumed from the mounds is represented to be most elegantly designed and finished, (see drawings of vases in Baldwin's work). "There are axes, single and double, adzes, chisels, drills or gravers, lance-heads, bracelets, pendants, beads, etc., made of copper." "The articles of stone show fine workmanship, some elaborately carved. Tools of some very hard material must have been required to work the porphyry in this manner." It is worthy of particular note that some of the implements and ornaments are of obsidian, "a volcanic product found, in its natural state," says Baldwin, "nowhere nearer the Mississippi Valley than the mountains of Cerro-Gordo in Mexico. Fragments of charred cloth, made of spun fibres, have been found in the mounds. Specimens of this are preserved in the Blackmore Museum, Salisbury,

England." Tubes, supposed to have been used for telescopic purposes, from the fact that similar tubes have been found in Peruvian mounds with other discoveries indicating the use for which they were designed. As regards the copper found in these mounds, it was subsequently ascertained that this ancient people mined the copper deposits of the Lake Superior region very extensively, much more so than has been done in our day; for, wherever an exploration has been made, it has been found that the mound-builders have been before us; and the writer has been informed by a gentleman interested in these mines, that the ancient miners seem to have possessed some superior means of ascertaining the existence of *paying* deposits, for, in no instance, said he, where they had made excavations, did we fail to find copper in paying quantities, whereas, they often failed where there were no such indications. A mass of copper weighing six tons was found in the "Minnesota mine," some thirty feet below the surface. It is described as lying upon a platform of logs, their ends showing the marks of the axe. "They soon shriveled and decayed on exposure to the air." This was described by Chas. T. Jackson in his geological report to the government. Heavy stone and copper mauls were also found. Besides the fallen and rotting trees of former generations lying across the pits, there were "trees showing three hundred and ninety-five rings of annual growth standing on the *debris*." It is needless to enumerate the remarkable remains which were scattered all around this region. One who had examined it informed the writer that at some points, as on Isle Royale, one might gather cart loads of axes, mauls, hammers, etc. "Some of the blocks of stone, which had been moved, weigh two or three tons." "Who can imagine," says Baldwin, alluding to the theories regarding the origin of this people, "the Iroquois or Algonquin Indians found in

this country two hundred years ago, working the copper mines with such intelligence and skill, and such a combination of systematic and persistent industry!" It is absurd to suppose a relationship or a connection of any kind between the original barbarism of these Indians and the civilization of the mound-builders."

The character of these relics described in the preceding paragraph, and the circumstances under which they were discovered, compels us to go back thousands of years for the date of the epoch when the mound-builders were a flourishing people. Geologists have ascertained the fact that, under certain favorable circumstances, skeletons buried in the earth remain in a fair state of preservation for at least two thousand years, and we see in what an advanced state of decay these of the mound-builders are found, notwithstanding the fact that, in most instances, the nature of the soil was not unfavorable for their preservation. Sir Charles Lyell counted eight hundred rings of annual growth in a section of a tree found growing on a mound in Ohio; yet it is impossible that this can include more than a moderate portion of the time which must have elapsed since the first planting of the colonies, even supposing the mounds to have been reared at an early date after their advent in the country, which is not probable. Skeletons and bones of the mound-builders have been found as far south as Georgia. In West Virginia one was found at the depth of twenty-five feet, and near the skull quantities of beads made from the Conch, which had probably been strung around his neck. Skulls taken from the *centre* of Georgia mounds, as one opposite Macon, were entirely different in age and in form from those on the surface, being greatly distorted by pressure; while the accompanying relics were also of an entirely different character.

As regards the *purposes* for which the mounds were built, about which archæologists have had and are still having so

much discussion, we have seen that the burial of certain distinguished persons must have been the object of a certain class. Of course we have not the space here to *exhaust* the arguments which have been advanced to prove this. There are reasons for supposing that another class were intended for sacrifices, "sacrificial" mounds. Mr. M. F. Stephenson states that, from the surface of a mound in Georgia, a sand stone *idol* was taken; and Foster (*op. cit.*) thinks that this indicates that sacrifices were offered on the mound. Other more significant signs of sacrifices have been discovered in Wisconsin and elsewhere. These mounds are built so as to present a stratified appearance; their stratifications, as well as their contents showing their artificial character." In the centre of these "altar" mounds, as they are also called, have been found great numbers of, to those people, most costly offerings. A friend of the writer, Dr. P. R. Hoy, of Racine, met with some of these deposits in his examinations; not only these but charred human bones, indicating probably *human* sacrifices. In the "sepulchral" mounds, described by Squire and Davis, evidences that cremation, at all events, was practiced, are numerous.

The mounds which have slight elevation, and extensive areas on top are supposed to have been the foundations for public structures of some kind; while those of greater elevation, with a smaller terminal section, approached by staircases and steps, have doubtless been capped by temples or religious structures, which, having been built of wood, as all the buildings of these people were, have entirely disappeared. Similar mounds in Mexico and Central America were always used for this purpose, and having been invariably constructed of stone, have survived to this day. There is some positive evidence that they used wood in their works. Baldwin mentions that in one of the mounds in the Ohio Valley "two chambers were found with

the remains of the timber of which the walls were made. It does not appear that these elevated and terraced *foundations* were used anywhere on this continent except in Central America and Mexico for public buildings; and, as we can conceive of no other object of these structures in this country, and as there are, as we shall see, other good reasons for supposing that the mound-builders, or their ancestors, came from these countries, it is a logical inference that those mounds, not intended for burials or sacrifices, were intended as foundations merely.

After all the explorations in various parts of our country, and the very interesting and important developments arising from them, no one has yet discovered the crucial test as to the question, who were the mound-builders? Perhaps some enterprising archæologist may find the answer in the mounds of Florida, the most important of which have never yet been explored, and none of them thoroughly.* At present those appear to be good reasons for connecting the mound-builders, as Baldwin, Foster, and other writers have done, with the ancient inhabitants of Central America and Mexico, the people who are supposed to have preceded the Incas, and the remains of whose works in Peru, even at this day, as their macadamized roads, over one thousand miles in length, built of stone, and filling up mountain gorges, and valleys in some instances, surpass in magnitude and solidity anything of the kind since attempted.

Let us now, in conclusion, briefly con-

sider the view adopted by Prof. Morgan in his paper recently read before the Academy of Sciences at Washington, and previously alluded to in this article. Any statement or theory advanced by one who has studied this subject so thoroughly, and won so high a reputation deserves careful investigation, especially as his ideas appear to have been generally accepted by the ethnologists present. But there was really no *discussion* elicited. Prof. Morgan claims a unity of origin of the Indian races of the country, and rejects the theory of the emigration of the mound-builders from Central America. "It is certain," he says, "that if a sensible use of those embankments can be discovered, the mystery about them will be dispelled. The theory that they were built for religious purposes is exceedingly improbable; the magnitude of the work, considering their grade in civilization, indicates that the Indians were laboring for themselves, not for their gods." He thinks that "the great inclosures of earth works were merely the foundations for their habitations, and designed for protection against hostile attack. He compares them to joint tenement houses." If they were laboring for themselves and not for their gods, in constructing these huge works, how will Prof. Morgan explain the other enormous structures which were certainly *not* intended for dwellings, or for private purposes; the conical mounds, and those covering skeletons and costly offerings; the mound in Adams County, Ohio, forming a serpent over one thousand feet in length, the greatest breadth thirty feet, disposed in graceful curves, with a mouth enclosing a huge representation of an egg? "There can be little doubt," says Squier and Davis, "of the symbolical character of this monument." Prof. Morgan estimates that these embankments would be occupied by about three hundred families. Did he calculate how long it would require for the working force of this number to construct four

*The researches of Lieut. Wheeler and his able assistants in New Mexico and Arizona during the past year, and their further prosecution are likely to throw a good deal of light on this question. He says, "information of shell-mounds and other indications of ancient burial remains of a people of which history contributes no trace, reaches us from several points, thus affording fresh fields for further research." Some of the remarkable relics sent to Washington by him, the writer has examined and already alluded to them in this paper. They are almost identical with some found on this side of the continent.

embankments, each "nine hundred feet long, fifty feet thick, ten or eleven feet high, and over thirty feet level on the top," with such implements as they had? And, at the same time perform the necessary labor to support their families. Then these are merely the foundations; the houses, such as he describes as suitable to cap these foundations, would still present a formidable work.

To build structures of such magnitude, to carry on, at some distance from their dwelling-places, such extensive mining operations as have been described, and to arrive at such a grade of civilization as their fabrics indicate, prove that this people must have devoted themselves to agriculture, and very successfully too. Mr. Albert Gallatin considered them "eminently agricultural." They could not have been so had they been in such constant fear of hostile incursions as to require such habitations. Nor could they have carried on their great mining operations successfully for so great a length of time, as their remains indicate. There are, indeed, undoubted remains of what have the appearance of extensive fortifications as in Butler County, Ohio, (figured by Baldwin,) in Georgia, and Southern Florida, evincing considerable engineering skill, but these are of a very different character from such as he describes. These fortifications are probably built to defend themselves against the incursions of the barbarous tribes from the Northwest, who finally conquered them, and pushed them back into Mexico whence they originally came. There are traditions in the annals and books of the Central Americans and Mexicans, that the Toltecs, who preceded the Aztecs, came from the Northeast, and that they were driven away from their homes by invasion; that they inhabited a great empire there. Several writers refer to these facts, and refer to points on the coast of the Gulf at which they landed, those who came by water (from the mouth of the Mississippi.) Their character, and their

proficiency in the arts are also referred to by these old records. These were our mound-builders.

Were the mound-builders of Florida, and those, whose history we have just been reviewing, the same people? When a more thorough exploration of the mounds in this State shall have been made, we shall be better prepared to answer this question. At present, the weight of evidence is in favor of the affirmative. The structures here are identical with many of those found in other States. In coming north from Central America and Mexico, they landed on the shores of the Gulf, just as they departed thence on their return. They would naturally spread themselves along the shore toward the peninsula, as the abundance of their works show, in fact, that they did. And its fine climate so nearly resembling their own, and the fruitfulness of the country, would naturally invite them to explore and settle it. We could not expect to find the skulls of the mound-builders, which would go far towards settling the question, near the *surface* of the mounds, where the only examinations have been made. Foster remarks that the "crania from the Florida mounds are distinguishable from those of the mound-builders by marked peculiarities." But he seems to base his assertion on only a few skulls which were taken from one mound near Cedar Keys. Most likely they were the crania of a later race who practiced intrusive burial, as we have seen that it is impossible to exhume a skull as old as those of the mound-builders entire, only one having been found. The portion of a skull found by the writer in the mound of Murphy Island was decidedly flattened on the side, but it was hardly old enough, though quite brittle like rotten wood, for a mound builder's, and too near the surface.

"American archæology is as yet in its infancy, and there are on every side, interesting fields, in which intelligent observers may reap rich harvests." It is

hoped that the account of the very meagre and comparatively unsatisfactory explorations of the writer, and his references to the more important labors of others, may serve at least to act as sign-boards to direct other abler workers, and those having more leisure, to these fields; also to afford others, who do not possess energy or strength sufficient for *work*, or whose health will not permit it, or who may find a winter's residence here tiresome, one additional weapon for killing time.

FREDERICK D. LENTE.

Palatka, Feb., 1877.

P. S.—In order to present both sides of this question fairly, I append a letter entire, which I have recently received from my learned friend, Dr. P. R. Hoy. The mounds which he has examined, as the reader will perceive, are of much less importance, in point of *size*, than those found in the adjoining States, and were probably raised over individuals not particularly distinguished, and would therefore contain fewer valuable deposits. The custom of burying valuables with the chiefs and distinguished persons of tribes has been universal, and to this day, some, at least, of the Western Indians bury numbers of horses, and other valuables with their chiefs. But they have, of late years, perhaps from association with their sharp visitors of the white race, allowed corruption to creep in among even those sacred and immemorial rites, and as I am informed by one who has had long personal experience among them, look up useless animals instead of burying the valuable ponies of the chief.

DR. HOY'S LETTER.

Dr. F. D. Lente:

SIR: There is a remarkable group of ninety mounds near Racine. I opened fourteen of these. They were all sepulchral; all contained human bones much decayed; and, in

but one instance could I restore sufficient parts of the skull to indicate the shape. The one restored is at Washington, in the Army Medical Museum. The jaws projecting, head rather small, with an angle (facial) of 75°. This skull indicated more of *bite* than intellect. The mounds are all small, from two to eight feet high, and from ten to ninety in diameter. There was an excavation made in the soil, and carried down to the gravel some two feet. There the bodies were placed, and the mound built over them; or, it is possible that the body was covered with bark, then the mound constructed at one time, as there was no evidence of stratification visible in any of the mounds which I opened. No implements were found in any of those examined except in one instance, when I found the remains of two vases constructed of coarse material (sand and clay). It would appear that the practice of interring valuables with the body was of a more modern people.

The *age* of these mounds. I counted two hundred and eighty rings on a stump of an oak that remained on the centre of a mound. And in another instance, one tree was four feet in diameter, and counted three hundred and ten rings; and an old stump on one mound must have been much older. So that the mound could not have been less than one thousand years old, as it takes about that time to restore the original condition of woods—having been cleared.

There were several animal-shaped mounds which I opened, and found nothing; in fact, there has never been found any evidence that these animal-like mounds were used as deposits of the dead. No evidence that the people were cannibals.

Whatever be the legitimate inference drawn from similar works and remains in other places concerning the state of civilization attained by the mound-builders, the evidence here goes to prove that they were an extremely *barbarous* people, in no respect superior, (if equal), to most of the savage tribes of modern Indians.

Racine, Jan. 12, 1877.

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